

REMARKS

In view of the above amendments and following remarks, reconsideration and further examination are requested.

In the Final Rejection mailed August 27, 2004, claims 9-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over EP '388 in view of Kanno et al. and EP '648. Without acquiescing to the appropriateness of this rejection and solely to further advance prosecution of this application, by the current Amendment claims 9, 12, 15 and 17 have been amended, and claims 10, 11, 13, 14, 16 and 18-29 have been canceled. Amended claim 9 basically includes the subject matter of former claims 10, 11, 13, 14 and 19, and accordingly, the rejection as it pertains to these claims will be addressed.

Amended claim 9 recites an apparatus for treating a waste gas containing fluorine-containing compounds. The apparatus as defined by amended claim 9 comprises not only a solids treating device, an addition device, a thermal decomposition device and an acidic gas treating device, but also a bypass, a bypass valve, an analyzer and an air ejector.

In the Office Action, the Examiner states that use of a bypass, an analyzer and an air ejector would have been obvious to a person skilled in the art; however, no cited reference discloses use of a bypass, air ejector and analyzer in combination with one another. The significance of using the bypass, air ejector and analyzer is explained as follows.

The bypass has a bypass valve provided between the supply line and the discharge line, and accordingly, even if a problem such as an increase of inner pressure or a gas leak arises in the apparatus so as to stop operation of the waste gas treating apparatus, a semiconductor fabrication apparatus such as an etching or CVD apparatus, from which a waste gas to be treated is discharged, can be continuously operated without stopping production of semiconductor products. In such a case, the waste gas passed through the bypass can be treated by a house scrubber (or a collective scrubber), which is installed at a subsequent stage for collectively treating waste gases, if operation of the waste gas treating apparatus is stopped for a short time. If the waste gas treating apparatus does not include a bypass, and operation of the apparatus and semiconductor fabrication apparatus is stopped, it will take a long time to re-start production of semiconductor products. Thus, the bypass of the instant invention is very important and essential in actual operation thereof.

EP '388 discloses that gas chromatography is used for monitoring a concentration of CF_4 in exhaust gases to be treated; however, this reference neither discloses nor suggests use of a bypass valve because it could not have been foreseen that the exhaust gas to be treated contains no PFC. In order to establish a prima facie case of obviousness, it is not sufficient to merely demonstrate that an apparatus could have been modified to include claimed features, but rather there must be some teaching or suggestion that would have led to the proposed modification. With regard to EP '388, because one having ordinary skill in the art could not have foreseen that the exhaust gas to be treated by the apparatus thereof contains no PFC, it is respectfully submitted that the requisite teaching or suggestion for providing EP '388 with a bypass is lacking. Thus, for this reason alone a prima facie case of obviousness has not been established, whereby claim 9 is allowable.

The analyzer is used for monitoring a composition of treated gas. The analyzer is useful for measuring multiple components, especially HF, at one time, and can easily be operated to conduct real-time measurement. Thus, an FT-IR analyzer is more suitable for monitoring the amount of HF and determining a deactivation degree of the catalyst as compared with gas chromatography as disclosed by EP '388, because gas chromatography cannot be used to detect HF and takes a long time for analyzing and obtaining results.

As with the above-discussion pertaining to use of a bypass, that EP '388 could have been modified to include an analyzer as recited in claim 9 is not sufficient to establish a prima facie case of obviousness. Some teaching or suggestion for providing EP '388 with such an analyzer is needed; however, this teaching or suggestion is lacking. Thus, for this additional reason a prima facie case of obviousness has not been established, whereby claim 9 is allowable.

The air ejector is for maintaining a negative pressure (a pressure lower than an atmospheric pressure) and is essential to safely operate the waste gas treating apparatus. A flow rate of an exhaust gas from a semiconductor fabrication apparatus varies, and accordingly, if the waste gas treating apparatus is not retained at a negative pressure a gas leak can occur. The air ejector can control a pressure in components of the waste gas treating apparatus by increasing air pressure charged to the air ejector. Thus, components of the waste gas treating apparatus are retained under a negative pressure regardless of varied pressure of an exhaust gas flowed into the apparatus.

The waste gas treating apparatus of the present invention is designed to treat an exhaust gas from a semiconductor fabrication apparatus, which contains not only PFC gases, but also a contaminant gas such as an oxidizing gas, an acidic gas and CO. Thus, the bypass, analyzer and air ejector are essential to the apparatus of the present invention.

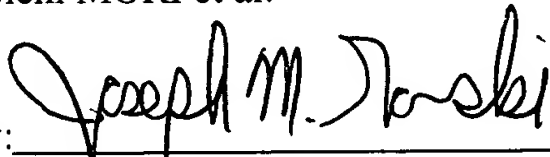
For the reasons stated above, and those presented as part of the response filed February 27, 2004, it is respectfully submitted that the invention as recited in amended claim 9 is not obvious over the cited references.

In view of the above amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and an early Notice of Allowance is earnestly solicited.

If after reviewing this Amendment, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicants' undersigned representative by telephone to resolve such issues.

Respectfully submitted,

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